

The image shows a full-page view of a marbled paper pattern, likely from an antique book. The pattern consists of dense, vertical, wavy lines in shades of red, yellow, green, and blue, creating a complex, textured appearance. The colors are somewhat muted and aged, with some areas showing more wear or discoloration than others. The overall effect is one of intricate, organic design.

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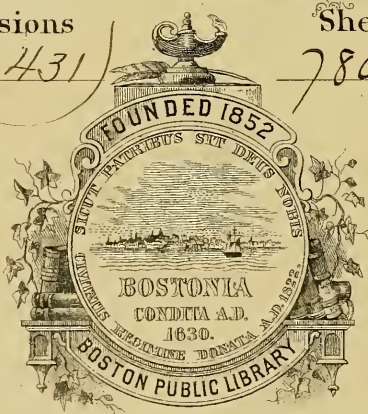
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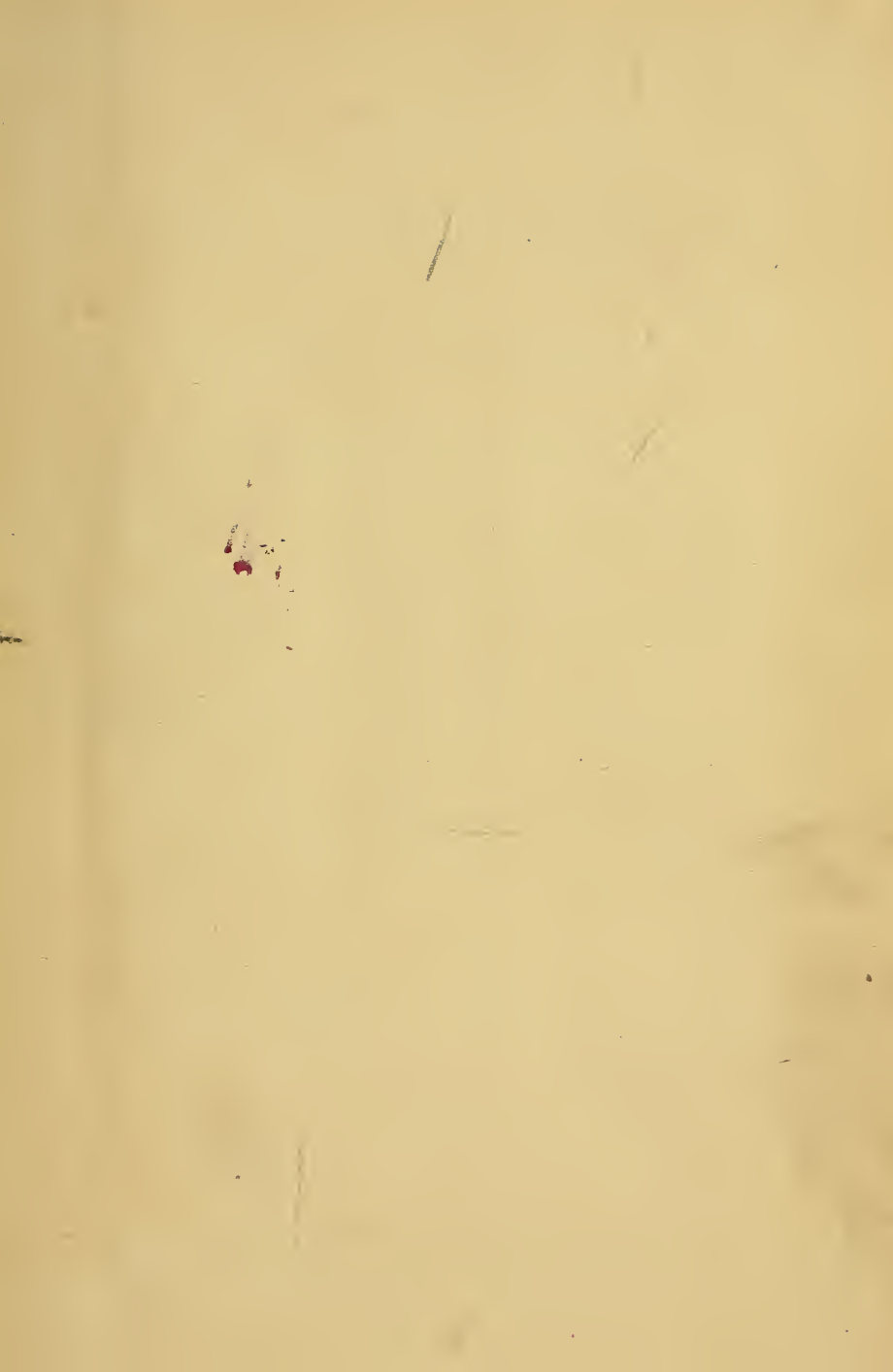
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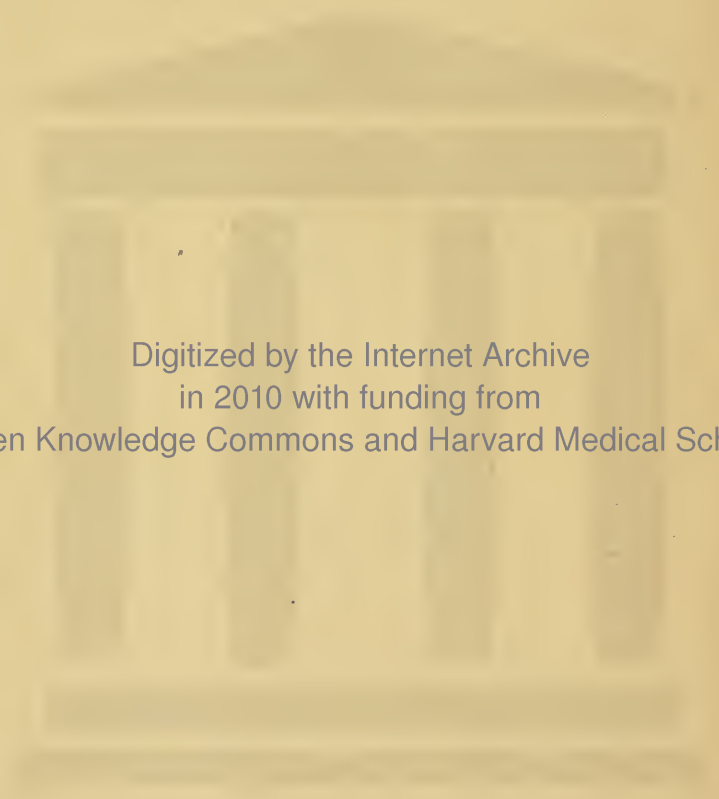
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THE
MINERAL WATER CONTROVERSY,

Artificial or Natural?

Conflicting Official Opinions.

THE U. S. CHEMISTS AND THE ATTORNEY-GENERAL
OVERRULED BY THE
SECRETARY OF THE TREASURY.

HIS NOVEL CHEMICAL THEORY THAT
Natural Products Can be Manufactured.

A REVIEW OF THE WHOLE QUESTION
ON BEHALF OF
AMERICAN MINERAL WATERS.

BY
CARL H. SCHULTZ.

NEW YORK:
E. WELLS SACKETT & RANKIN, STATIONERS AND PRINTERS,
56 & 58 WILLIAM STREET.

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The mineral water controversy is not of recent origin. It grew out of the provisions of the tariff law, which requires artificial water to pay duty, and admits natural water free. Free entry is therefore equivalent to a government certificate that the imported water is natural. It is sold as such to the public without regard to its real character.

About five years ago the importation of large quantities of highly effervescent mineral waters began which were admitted as natural waters, and Messrs. A. Blum Jr., & Sons, the agents of the Royal Prussian Selters Spring, remonstrated against the free importation of Apollinaris water. They furnished to the Treasury Department a published report by Professor Mohr, of Bonn, in which that water was designated, after analysis, as artificial, and styled by him "the artificial butter in the mineral water line," * * * "without any claim whatever to call itself a natural water."

In 1878 I also remonstrated, and presented to the Treasury Department the analysis and report of the United States Chief Assayer in New York, and of his assistant, who had found the imported Apollinaris to be "an artificial mineral water, not only artificially aërated, but also artificially compounded."

As the United States appraisers were in the habit of consulting the assay officers on chemical questions, I felt so much surprised that no notice was taken of my

remonstrance, that I caused the assay office analysis to be published in the daily papers.

Consul Bullock, at Cologne, was subsequently instructed by the State Department to examine and report upon the Apollinaris Spring. Though the facts stated by him show conclusively that the imported Apollinaris is an artificial water produced by ingenious, skillful and complicated operations, strange as it may appear, he expressed the opinion that it was natural, which opinion was adopted by the Treasury Department on the 21st of February, 1879.

The proprietors of the Saratoga Springs had also protested and given their definition of bottled natural mineral water, which was adopted by the manufacturers of mineral waters throughout the United States, who added their protests to those already made.

The matter was referred by the Treasury Department to the Smithsonian Institution, which reported in July, 1879, that the imported Apollinaris water is artificial; but it was, nevertheless, permitted to come in free of duty as a natural water.

Upon the application of our counsel, Colonel George P. Webster, of New York, the Secretary of the Treasury ordered, on December 10th, 1880, another investigation. The chemists in charge of the United States Laboratory at the port of New York were directed to analyze imported Apollinaris water, as the leading water of that class. They reported it, after a very complete analysis, to be an artificial mineral water, and as their opinions are followed on all questions of a chemical nature, the Appraiser assessed it for duty which was presumably due. The Collector and the Special Agent, who had charge of the investigation, concurred in the opinion of the Appraiser. The duties were paid under protest, and the Secretary of the Treasury, before deciding on the matter, submitted it to the Attorney-General for his opinion on June 29th, 1881.

The Attorney-General's opinion, which was rendered

on July 26th, 1881, was to the effect that Apollinaris water should be held to be "an artificial mineral water, and ought to be so regarded and held to be liable to duty."

As it was in favor of the United States Treasury, involved a heavy refund of duties already paid, and a prospective revenue of \$300,000 per annum, it was assumed that it would not be overruled except for weighty reasons and convincing proof. No new evidence has, however, been brought to light since the decision of the Attorney-General was rendered, but the government received a lengthy report from a Treasury Agent, in which was described the machinery and methods used at the spring, with the chemicals employed in order to alter the natural water. He, however, made no chemical determination as to the facts of the case, stating that he did not feel himself "called upon or competent to do so."

All examinations of this spring, in this investigation, were either made by parties engaged by the Apollinaris Company, or by U. S. Consuls and Agents abroad; and the latter admit that they are not experts, nor qualified for the task. Speculations and conjectures were substituted for chemical determinations. In none of these investigations were the interests of American manufacturers and spring owners represented. Permission to examine their works was refused to an American manufacturer who was endorsed as an expert by a prominent Treasury official, and who visited the spring in company with United States Special Agent Tichenor.

We give the Attorney-General's opinion in full; also the decision of the Secretary of the Treasury.

DEPARTMENT OF JUSTICE,
WASHINGTON, D. C.
July 26th, 1881.

Hon. WM. WINDOM,

Secretary of the Treasury.

Sir.—I return herewith the papers submitted to me with the letter of Acting Secretary French, requesting my opinion whether Apollinaris mineral water is entitled to admission free of duty.

In reply thereto, I have the honor to state that I have carefully investigated the subject, and have been greatly aided in such investigation by oral arguments and very full printed briefs submitted on the one side by Mr. Webster, and on the other side by Mr. Ashton and Mr. Saville. The question at issue, in my judgment, is wholly a question of fact, and the evidence upon it is so conflicting and contradictory that it appears to me to be indispensable that it should be submitted to a court and jury.

I entertain no doubt whatever that mineral waters “not artificial,” in the meaning of the Act of Congress, are natural mineral waters, bottled substantially as is stated in the affidavit of Mr. Sheehan, included in the papers submitted to me, to be the method employed at Congress Spring, Saratoga, New York. He says that “the water from the natural mineral fountain known as Congress Spring is taken directly from the spring as it flows from its veins in the earth, and immediately bottled, without adding any substance thereto, and without any change, alteration or modification whatever.”

The Apollinaris water, on the contrary, is not bottled as it flows from the spring, but it is, in the first place, heavily surcharged with carbonic acid gas, and ten parts of salt are added to ten thousand parts of water. It is alleged on behalf of the importers, that not only is the carbonic acid gas such as escapes from the spring itself or from fissures in the rock immediately around the

spring, but that this water when being bottled is charged with no greater portion of such gas than it possesses at a depth of fifty feet below the surface, and that the process is merely to restore to it the gas which had thereafter escaped. This contention is, however, vehemently denied, and it is insisted that not only is there no evidence that the quantity of gas is the same, but that the evidence clearly establishes that the water as bottled contains a very considerable excess over the water in the spring.

As to the salt, the importers allege that it is simply added to preserve the water in its natural state, and to prevent contact with the cork from altering it. This, however, is also as earnestly denied, and it is insisted that the salt is added, like the alleged excess of carbonic acid gas, for the sole purpose of altering the natural character of the water as it flows from the spring, and of enhancing its value as a sparkling and palatable beverage.

In view of this conflict of testimony, and of the fact that Special Agent Adams, of your Department, Mr. Sherer, the chemist selected by him, as well as Appraiser Howard, and Collector Merritt, of the Port of New York, have, after thorough consideration, concurred in finding that the water in question is subjected to such alteration after it leaves the spring as to render it an artificial mineral water—

I am of the opinion that it ought to be so regarded, and held to be liable to duty.

I cannot say that the question is free from doubt; but I have less hesitation in reaching the conclusion I have stated, because it will be subject to review, if the importers desire it, and the question will then reach the only tribunal which, in my judgment, is entirely competent to decide it.

I am, sir, very respectfully,

WAYNE MACVEAGH,

Attorney-General.

TREASURY DEPARTMENT,
January 28th, 1882.

In the Matter
OF
THE APOLLINARIS MINERAL WATER.

There is in Prussia a spring of water known as the Apollinaris Spring. From it flows a natural water. This water is a legitimate subject of commerce, and it may be imported into the United States free of duty. There is no doubt that water from that spring has been and is imported into the United States, and an importation of it gives rise to this case.

Why should it not come in free of duty? It is claimed that it is not when it reaches here the same as is produced by the spring. It is beyond dispute, that to transport it from the spring, it must be put into vessels of some kind that can be made air-tight, as bottles or jugs. Hence there must be a manipulation of it, and any manipulation that serves to confine it is allowable, and in itself does not change the character of the water, or render it an artificial product; for wheat in bags or crude petroleum in barrels is still a natural product. But it is said that in the manipulation there has been added to it two things, and then taken from it one. It is claimed that there has been taken from it iron; one of the chemists, on whose report they rely, who assail the genuineness of the imported water, concedes that the quantity of iron ever in it is so small, that the presence thereof in or absence thereof from the water will make no difference in the quality of it, and the conclusions of other chemists agree with his. Besides, the report of the special agent, Tichenor, is, that as matter of fact, the iron ever in it is

not taken from it. This allegation against the water is not sustained.

It is said that there is added to it salt. The quantity added is not great—some is added. The question is, does it change the properties and character of the water? Is it added for that purpose? Or is it added to preserve the water in the state in which it is bottled or jugged, and without the purpose or effect to change its character and properties? I must say that the facts of the case show that by the addition of salt the taste of it is not changed, that the properties and character of it are not changed from what they were in the spring, and that it is not the purpose to make any change by putting in the salt; and that the purpose is the same as that of putting the water in air-tight vessels, *viz.*, to keep it in the state in which it is procured from the earth for a length of time—long enough to permit transportation to other countries.

It is claimed that there is put into it carbonic acid gas in greater proportions than that gas exists in it in nature. I do not think this is maintained. The allegation depends much upon speculation; when it leaves speculation it depends upon whence the water is got with which to make analysis. It may be conceded that if the water is taken from the lips of the spring there is to be found in it on analysis less of that gas than is found in it when taken from the bottles or jugs. But the water that is put into the bottles or jugs is not taken from the lips of the spring; it is taken from down in the spring, fifty feet or so. The facts show that at that depth there may be, and doubtless is, as much of that gas in the water while it is in the spring as is found in the water from the bottles and the jugs.

But it is claimed that the water of nature is the water just where nature hands it to man—that is, at the brink of the spring.

I cannot agree to that.

Is not water at the bottom of a well sixty feet deep as

much natural water as water in a creek but a few inches deep? Coal or other mineral taken from the depths of the earth is a production of nature. If the water is drawn from the depths of the spring into the vessels, it is a natural water, though it have in it more of one ingredient than is found in it when taken from the surface of the spring.

The more serious question arises from the manner of manipulation of the water and the gas. The water is taken from the spring by one means, the gas separately by another, though not unlike means, and the two ingredients are afterwards combined.

It is claimed that more of the gas is put into the water when it is bottled than ever was in it at any depth of the spring. This is not sustained; and the only question is, whether, with no greater proportion of an ingredient than existed in the water at some depth of the spring, the separation of the ingredients first, and the combination of them after, in the original proportions, is the creation of an artificial water.

The effect of the decision in *Recknagel vs. Murphy* (102 U. S. Reports, p. 198) is that where the identity of a subject is not lost by the process it has undergone before importation, it does not cease to be the original article.

The question then becomes one of fact. Was the identity of the water lost by the separation, first, of the water and the gas, and by the combination of them afterwards?

If the subsequent combination made again the same that existed before separation, the identity of that article is not lost. The blade and handle of a sabre may be disconnected, and then one is a blade and the other is a handle.

If afterwards they, unaltered, are joined together, the two become again one thing, and that thing a sabre—the same sabre.

Were it possible to disintegrate coal and separate the gases in it from the tangible substance, and then again to reunite them in the same proportions and distri-

bution, the result would again be coal, and the same coal.

Now the reports in this case show that such is the result of what is done with this water. It is claimed that the gas is collected not only from the spring itself, but from the space about and outside of it. I do not find that this allegation is sustained. It appears to me from the papers that no more is taken and stored, and afterwards recombined with the water, than is the natural product of the spring evolved from the surface of it, so that if all that is thus caught is put back into a quantity of water no greater and no less than that from which the gas escaped in the rise of the water to the air, and is put back with equal distribution through the water, it follows that there is the same thing reproduced that before existed as a natural flow from the depth of the earth; and that this is so, seems to me to be the result of the investigation of the agents.

I conclude, therefore, that the water imported under the name of Apollinaris water is an article which is produced by nature, and is not the handiwork of man; that it is a natural and not an artificial water.

I will therefore adhere to the former decisions of this Department, that that water be admitted free of duty.

(Signed)

CHAS. J. FOLGER,

Secretary, etc.

Since the decision of the case by the Secretary of the Treasury, and with all the evidence before him, Professor Wolcott Gibbs has rendered the following opinion: a presentation of the case which will appeal to the common sense and judgment of the fair-minded everywhere.

OPINION OF PROF. WOLCOTT GIBBS.

Whether a mineral water is to be considered as natural or artificial will depend simply upon the signification which we attach to these terms. If we consider as natural a mineral water which, like that of Saratoga, is fit for use and can be sent into commerce as it comes from the spring, without manipulation or preparation, the Apollinaris water is *not natural*. If we consider as artificial a water which requires to be deprived of one or more ingredients and to have one or more ingredients added so as to render it salable, the Apollinaris water *is artificial*.

I find on examination of the evidence that Apollinaris water in its natural condition is weakly charged with carbonic acid, and that it contains so much iron that it is necessary to remove it by artificial means—that is, by a distinct chemical process. I find further that the Apollinaris of commerce is free from the styptic taste of iron, highly charged with carbonic acid, and containing enough chloride of sodium to distinctly affect and improve its flavor. It is admitted that chloride of sodium has been added to the water before it is sent into commerce. I find further, from the reports of those who have examined the subject on the spot, that the manufacture of commercial Apollinaris water from the natural spring water is a beautiful and refined chemical process, the carbonic acid of one portion of the water being collected and used to charge a smaller portion of the same water after this has been salted and

freed from excess of iron by another and special operation.

I am, therefore, of opinion that the Apollinaris water of commerce ought to be regarded as artificial and not as natural.

WOLCOTT GIBBS,

Rumford Professor in Harvard University.

CAMBRIDGE, April 6th, 1882.

The Secretary decides a number of questions which place us in a wrong position, because they never were in dispute. We always admitted the existence of an Apollinaris Spring; also the right to bottle its waters, as they are taken from the spring, and in any manner, as long as the water was not altered. We never stated that the waters must be taken from the surface or "brink of the spring," or that the spring does not contain natural water at a depth of fifty or sixty feet. If we used the phrase, that a bottled water must be the same *as it is taken* from the spring, we used the expression prescribed by the government for invoices of such water. This matter has been fully disposed of in the briefs of our Counsel, laid before the Secretary of the Treasury, from which we quote.

"We have never objected that pumps, pipes or machinery were used to get the water from the spring in its natural condition; the fact that the water is not bottled as taken from the spring is the one question at issue." (Filed December, 1881, before the Secretary of the Treasury, p. 2.)

"We do not claim that such means or technical methods make the water artificial, but the ingredients must not be changed by any artificial process. We

do not claim that the water must be taken from the surface of the spring, the company may take it wherever they can get it, but they must bottle and import it as taken from the spring and without intentional change." (See Brief filed December 22d, 1881, p. 8.)

As the conflict of testimony in regard to the facts of the case, which is mentioned by the Attorney-General, is mainly upon the effects which the chemical manipulations have upon the character of the water, we think we can best meet the case by a short statement of

FACTS.

1. The Apollinaris Spring, according to the investigations of Prof. J. A. Wanklyn, which are referred to in the reports of the special agents, has an outpour of 6,000 quart bottles per hour. He says: "Thus, the production of the spring is equivalent to upwards of 40,000,000 of quart bottles per annum" (or exactly 43,200,000).

2. The water which is bottled per annum is equal to 10,000,000 bottles, which, being large and small bottles, would represent a quantity of about 8,000,000 quart bottles.

3. The water is pumped from the spring through a suction-pipe, the length of which has not been determined, but which is asserted by the proprietors to reach to forty-eight or fifty German feet below the surface of the spring, where it is claimed to contain two and a half volumes of carbonic acid gas in solution. It is admitted that near the surface it contains only one volume.

4. It is pumped into storage tanks, the number and sizes of which are not given, but which are reported by the agents to be large and deep. The water, being exposed in them to the air, absorbs oxygen; the carbonic acid gas escapes, and the iron which was held in solution is oxidized and precipitated.

5. Salt is added to the extent of ten parts in ten thousand parts of water, which is equivalent to fifty-eight grains per United States standard gallon.

6. The surplus water which is not removed by the pump, and which amounts to 35,000,000 quarts per annum, has a lateral outflow, and is conducted into the river. The carbonic acid gas, however, which is evolved from it in its rise to the surface, is collected and forced into the water which is sold. This is accomplished by such machinery and apparatus as are indispensable for the manufacture of mineral waters, and a water of highly sparkling properties is obtained, containing a proportion of carbonic acid gas so excessive as to be beyond the absorptive power of water at a depth of fifty feet, and from two to three times larger than is dissolved by the water in the spring, as determined by analysis.

7. Consul Bullock bottled the natural water, and reported to the Treasury Department as follows (S. Treas. pamphlet, pages 23-25):

“In obedience to your instructions that I should obtain samples of the water direct from the spring, I had the main pipe cut as near as possible to the spring, and from the pipe so cut I filled a number of bottles which I have sealed and labeled and forwarded to the Treasury Department.

“The greatest care was taken to close the bottles the moment they were filled, but very little gas was retained.”

* * * * *

The result is expressed by him in the following language:

“I was reminded that the bottles of water I had already taken from the spring and sealed up, would show any deposit the water might make. It occurred to

me, however, that as the samples already taken *were bottled without carbonic acid gas, they were not, therefore, the same as the water sold to the public.*"

The Secretary bases his decision on the case of *Recknagle vs. Murphy*, in which it was held that where the identity of a subject is not lost by the process it has undergone before importation, it does not cease to be the original article. From the briefs of our Counsel, we learn that it had reference to argols or crude tartar taken from the wine cask. It was decided, "If there was no substantial change in the condition of the argols as they were when they came from the wine cask, they were crude." There was no change wrought in the argols. The tartaric acid was not separated from the base and reunited. The argols were not even dissolved in water and re-crystallized, by which refining process not a single atom of acid would have been separated from its base; they were not improved in value by any operation. They had to be crude or refined; they could not be both at the same time—they had to be one or the other. They were simply removed from the cask, and remained not only the identical argols, but the very same argols; they remained crude.

This operation corresponds absolutely to the removal of the natural water from the spring and to the bottling of the same. This has been accepted by our Counsel as good law; a fair and proper application of which would, in our opinion, reverse the decision of the Secretary of the Treasury.

If it is held that the water bottled by Consul Bullock is the natural water of the spring, then the imported water, as it differs from it, must be artificial; if the latter is natural, then how are we to regard the former? Is the water of the spring artificial? The decision of the

Secretary rests upon the impossible assumption that it is.

Nor does the case above quoted contain anything that supports the Secretary's novel doctrine, that if a natural product can be separated into its component parts, and put together again in the same proportions as it existed in nature, it will remain the same and natural. According to his view, great care and skill must of course be used to hit the right proportions, and the greater the care and skill, the more natural the article becomes; *any lack of care and skill, or the least negligence on the part of the workmen, might make it artificial.*

His illustration with the sabre, which is a manufactured article, and therefore cannot properly be compared with a natural product, serves the very important purpose of defining the extent and limit of the separation and recombination of the original parts. It must be the same blade and the same handle, which must be, "unaltered," joined together to make the same sabre. If the blade is taken to mean the water and the handle the carbonic acid gas, we will find that neither of them have remained unaltered; that the blade has been cleaned of its iron rust and refined with salt, and that for the handle (the carbonic acid gas) another handle has been substituted, made of similar material, but three times as large. We therefore do not obtain the same sabre, but quite a different sabre. It is not, as the Secretary supposes, a fact that the water "is taken from the spring by one means, the gas separately by another, though not unlike means, and the two ingredients are afterwards combined," and that they pre-existed as such in that combination in the spring itself. On the contrary, the natural water, as pumped from the spring, already contains its entire quantity of carbonic acid gas in solution, which, being allowed to escape, can never be recombined with it; and the carbonic acid used in the operation belonged to and was collected from the 35,000,000 quarts of wasted surplus water. Its physical properties are the same, as carbonic acid remains identical, from

whatever source it may have been obtained. But identity of composition is not sufficient to establish natural character ; *otherwise such artificial mineral waters as are identical in composition with natural waters, and proved to be so by the analyses of chemists, would, by the Secretary's decision, become natural.*

In reply to the Secretary's *coal* illustration, we refer the reader to the following letter from Professor Silliman, of Yale College :

MEDICAL DEPARTMENT YALE COLLEGE,
NEW HAVEN, Conn., March 23d, 1882.

Carl H. Schultz, Esq.,
860 Broadway, cor. 17th St., New York.

MY DEAR MR. SCHULTZ :

You ask me what I think about the following sentence :

"Were it possible to disintegrate coal and separate the gases in it from the tangible substance, and then again to reunite them in the same proportions and distribution, the result would again be coal, and the same coal."

In reply I have to say, that the assumption is absurd. No chemist, and no person having the least familiarity with chemical principles, would ever sincerely present such a hypothetical case. An equally reasonable assumption would be this, putting the case in the same form of words :

"Were it possible to disintegrate a human body and separate the gases in it from the tangible substance, and then again to reunite them in the same proportions and distribution, the result would be again a man, and the same man."

We will not limit the power of the Almighty by the assumption that His Omnipotence is incapable of such a

creative act in either case. But we may say, without want of reverence, that He does not violate His own laws to suit the demands of human folly and ignorance.

It is a sufficient answer to the groundless assumption of the proposition you submit to assert what every chemist must admit, *viz.*:

1. That there are no gases in coal in the same sense in which there is carbonic acid dissolved in a mineral water.

2. That the gases given off in the destructive distillation of bituminous coal are not the same gases which, under the influence of life and light, were drawn from the atmosphere and water of the coal epoch, but quite a different series resulting from molecular transformations which the coal vegetation has undergone during the progress of its change from vegetable fibre to bituminous coal.

To the chemical mind, the proposition you submit is not one which admits of argument or discussion.

Yours very respectfully,

B. SILLIMAN.

The Secretary, however, differs with the Professor. He states :

“Now the reports in this case show that such is the result of what is done with this water.”

It is possible to separate the yolk of an egg from the white. By reuniting them “in the same proportions and distribution, the result would be again,” according to the Secretary, an egg, and the same egg the hen laid. But it won’t hatch. By substituting, however, for the above hypothetical illustrations others which are practical, the untenableness of the Secretary’s new doctrine will be shown at a glance. In the Secretary’s own department, in the mints and assay offices of the United States, many millions worth of fine gold and fine silver

bars are manufactured by highly scientific and skillful operations from natural alloys of gold and silver. By melting the same metals together again in the original proportions, according to the Secretary's decision, the original native gold would be the result. We do not believe such an operation would be very profitable; neither can the art and skill expended in a process be annihilated. The vandal can destroy a statue, but he cannot thereby create the original block of marble from which it had been chiseled.

In case no separation of component parts is required in the treatment of a natural article, the process would of course become at once much simplified. If, for instance, 100 pounds of water are subjected to artificial cold, and thereby converted into ice, everybody will at once admit that ice to be artificial, because produced by the art and skill of man. But according to the Secretary's new doctrine, it would at once be converted into natural ice, upon proof being furnished that 100 pounds of ice were melted to obtain the water for its manufacture. It would become natural by an additional process. We do not believe that that operation would be profitable either.

We do not think it is profitable to manufacture anything which nature furnishes in bountiful supply; and it is self-evident that it is not the object of the Apollinaris Company, who subject the natural water to an expensive and complicated process, to furnish it the same as it is in nature. It is unnecessary to inform such skillful manufacturers how, with a recess near the spring fifty feet deep, and from which, as special Agent Starring reports, they used to bottle, the water can be taken from the spring and maintained in its natural condition, and conveyed to great distances from the spring and there bottled without any further expense. Their object, therefore, must be the same as that of all manufacturing processes, *viz.*, to improve the value of the natural product, and in their case the value of the water is increased precisely in the

same ratio as ordinary water, which is almost valueless, is made valuable and marketable by being subjected to the soda water process and made into a marketable soda water.

The only question before the Secretary was: Is the water as pumped from the spring from fifty feet below its surface the same as the imported water? Both must be known, else they cannot be compared.

It was the duty of the importers to furnish proof that it was the same, but they failed to do so. They employed six chemists who looked at the spring and its evolution of carbonic acid gas (which will be explained further on), but made no determination. They substituted conjectures and calculations for chemical analysis, and based their theories upon the absorptive power of water for carbonic acid gas, without even taking into account the temperature of the spring, which is $70\frac{1}{4}^{\circ}$ F. In this way they expressed the opinion, which was adopted by the U. S. Special Agents abroad, that at a depth of (50) fifty German feet the water contained two and one-half volumes of carbonic acid gas in solution, while near the surface it is admitted to contain only one.

As all the gas is allowed to escape the quantity is of no importance whatever, and only furnishes a pretext for the subsequent impregnation of the water with an excess of gas collected from the surplus water.

At that depth the weight of the superimposed column of water exerts a pressure of one and one-half ($1\frac{1}{2}$) additional atmospheres, which is equal to a pressure of twenty-two and one-half ($22\frac{1}{2}$) pounds to the square inch. Water bottled at such a depth without loss of gas could not show a higher pressure. *Twenty-two and one-half ($22\frac{1}{2}$) pounds represent the limit according to their own theory.*

The United States chemists, however, who made numerous determinations of the gas pressure of imported Apollinaris, did not find it in a single instance to be twenty-two and one-half ($22\frac{1}{2}$) pounds per square inch, but adjusted to the strength of the vessels. While it was

less in all jugs, it ranged from thirty-five to forty-five pounds in all bottles. According to physical laws a depth of from seventy-eight to one hundred feet would be required to obtain such water, if it existed.

The Secretary's opinion that at a depth of fifty (50) feet "there may be and doubtless is as much of said gas in the water while it is in the spring as is found in the water from the bottles and jugs," is therefore contrary to the laws of nature and erroneous. It cannot be supposed that he means, when using the phrase, water *from* the bottles, such water as is open and not confined in the bottles. The water is artificial, according to his own decision.

It is a curious fact that the importers and their scientists overlooked the physical impossibility of pumping such water, which loses one and one-half volumes of gas on its way to the surface. How do they obtain a vacuum in the suction pipe? Either the water does not contain the estimated quantity of gas, or the length of the pipe is a myth. They lose their claim in either case.

As the Secretary could not decide the question before him in favor of the importers, he substituted for some cause a *general* question which is *independent of the length of any pipe*. He states: "The only question is, whether, with no greater proportion of an ingredient than existed in the water at some depth of the spring, the separation of the ingredients first, and the combination of them after, in the original proportions, is the creation of an artificial water."

That he intends to cover any imaginable depth in the bowels of the earth is clear, as he in the same sentence decides that the claim, "that more of the gas is put into the water when it is bottled than ever was in it at any depth of the spring," is not sustained.

We are sustained by physical laws that no such water as is imported is taken from the spring. The burden of proof that it is, rests upon the importers. How did the

Secretary arrive at the original proportion of the ingredients? There is actually no basis for his decision except the delusion that the quantity of gas continues to increase with the depth *ad infinitum*, and that any quantity can be used, provided it has been collected from the spring. It belonged to the water, and if returned to it in any proportion creates a natural water at some depth—a specious argument which is very apt to deceive, but the fallacy of which can be readily shown, without entering into a general discussion of this important question which would be clearly beyond the compass and purport of these pages.

We cannot consider springs where the carbonic acid gas accidentally meets with the water near its surface, and, without having been in absorption, simply passes through it; nor the gases which continually permeate springs, although no water flows or is taken from them, or where it has a subterranean outlet. We must restrict our remarks to the Apollinaris spring with outpour and physical properties as described by their chemists, and to some spring with an outpour ten times less, but in all other respects absolutely alike. The water of each contains one volume of carbonic acid near the surface, and an additional quantity dissolved at the rate of one volume for every thirty-four feet of depth which is evolved from the surface of the spring as the water ascends and flows off.

Both springs would contain in solution, provided there is sufficient gas in them:

- | | | | | | | | |
|----|---------------|--------------------|----------|---------------------|-----------------|---------------------|------------------|
| 1. | At a depth of | $8\frac{1}{2}$ ft. | an add'l | $1\frac{1}{2}$ vol. | of gas equal to | $3\frac{1}{2}$ lbs. | pres. p. sq. in. |
| 2. | “ | “ | 17 | “ | “ | $\frac{1}{2}$ | “ |
| 3. | “ | “ | 34 | “ | “ | 1 | “ |

Neither spring could evolve more gas than its whole amount. If collected and passed through a meter, any index taker could ascertain its quantity, which would at once indicate the point of supersaturation or the depth

below which the proportion of gas cannot increase. If outpour and evolved gas were equal in volume, the point of supersaturation would be reached at thirty-four feet below the surface ; at a greater depth the water could not become richer in gas, because more than one volume would have to be evolved. There is no mystery nor speculation about it. It is not necessary to go down to an impossible depth to ascertain the quantity of carbonic acid gas in the water when in the "bowels of the earth."

The big spring will of course evolve ten times more carbonic acid gas available for bottling purposes than the small one, as its relative quantities depend upon their capacities, just as the supply of steam depends upon the size of the boilers. But if a quantity of water equal to the entire yield of the small spring be bottled *from each* with the usual precaution of displacing the air in the bottles with carbonic acid gas, its supply at the small spring will soon be exhausted and the water will have to be bottled in the usual way without pressure, while the big spring will have a large surplus left for further manipulation. Ordinary springs evolving one-fourth, one-half or one volume of gas can thus, by using the gas of the whole spring, but bottling only a fraction of its waters, be easily represented as springs eight times stronger evolving two, four or eight volumes, with gas pressures of thirty, sixty or one hundred and twenty pounds per square inch respectively when bottled.

One volume could not even be used up ; and the flow of the spring would either have to be regulated according to the requirements or the gas allowed to escape "in large quantities into the sunken court-yard, making approach dangerous to life."

This is the grand spectacle represented at the Apollinaris spring as a proof of the excessive richness of its waters. The U. S. Agents looked at it from a distance for fear of suffocation, while a single volume furnishes more gas than required ; and even obviates the necessity of using the carbonic acid, which, according to Prof. Wank-

lyn, issues in quantities from a large fissure in the immediate vicinity of the spring and collects in a recess.

With the enormous gaseous impregnation imagined by the Secretary to exist at some depth of the spring, the Apollinaris Company could, in addition to their sparkling water, annually furnish over one million quarts of liquefied carbonic acid and large quantities of very fine brands of white lead (this is actually done at another spring), of saleratus and of champagne, and the Secretary ought to pass them free of duty as natural products, because the gas pumped into and combined with them came from the Apollinaris spring. It was never, indeed, united with them in nature, but neither was the gas which is forced into the imported water.

The proposition to manufacture a natural product presents a contradiction in itself. To manufacture it out of parts which were never in combination in its natural state, as in this case, is even beyond the power of a creative act, because the proposition is absurd.

IRON.

In the uncounted number of large and deep storage tanks, the iron which was in solution becomes oxidized and precipitated as the hydrate of the peroxide, which, compared to its weight, is of enormous volume, and spoils the appearance and in other respects injures the water and makes it less salable. This precipitation is admitted by the chemists who examined the works in the interest of the importers. They say that it cannot even be prevented. But natural products are not intentionally exposed to conditions which produce changes, except for good reason. We are invited to the transparent explanation that large bodies of water must be kept on hand for a sufficient supply, when the spring yields such an abundance that over four-fifths of its outpour runs to waste. It is also well known that this process of removing iron is followed at all ferrugin-

ous springs, the waters of which are used for the manufacture of imported sparkling table water.

Special Agent Tichenor, who is mentioned in the Secretary's decision, states that, "as a matter of fact, the iron ever in it is not taken from it." But his assertion cannot change natural laws. And he also contradicts himself when he says: "If, on account of the primary separation and subsequent reunion of the water and carbonic acid, *the elimination of the iron*, the addition of chloride of sodium," etc., etc. He probably was not aware that for the precipitation of iron several days are required (hence the many tanks), and that such an operation cannot therefore be discovered by a short examination. He also visited the spring under peculiar circumstances. After waiting two days for the arrival of the president of the company from London, he states:

"He (the president) invited me to join him in an inspection of the Neuenahr Springs and to accompany him on a visit to the springs at Schwalbach and Wiesbaden, and to any others I might name. These invitations were accepted." After his return he examined the Apollinaris factory.

SALT.

Salt is added at the rate, as stated, of fifty-eight grains per gallon. This is proved by analysis and admitted by the importers. Many European and American mineral springs contain less than fifty-eight grains of mineral substances altogether and have acquired fame; but the Secretary decides that in the case of Apollinaris such addition does not change its character and properties, and that it is added to preserve it, "to keep it in the state in which it is procured from the earth, for a length of time long enough to permit transportation to other countries." Here we have the official statement that bottled Apollinaris water is liable to decomposition, and could not, without being salted, be safely transported to the United

States, as that is the only country which concerns the Secretary. They say that it is apt to evolve the smell of sulphuretted hydrogen (which is the well-known smell of rotten eggs). If anybody but the proprietors had ventured such a derogatory statement we suppose they would sue him for libel. The chemists of the United States Laboratory, however, and Prof. Kekule, who was employed by the Apollinaris Company, state that no addition of salt is required for that purpose in the presence of such a large excess of carbonic acid gas ; which position, according to the experience of all manufacturers, is the correct one.

The value and character of mineral waters are derived from their mineral ingredients, which in this case are increased forty-five per cent. The character and identity of the water must, therefore, be changed forty-five per cent., and the reason why the addition has been made is quite immaterial, if the principle in the case of Recknagle *vs.* Murphy is to control.

But if forty-five per cent., in the opinion of the Secretary, can be added without destroying the natural character of the water, then any multiple of forty-five per cent. and any amount of any substance can be added, and the door is open to all kinds of practices, limited only by the solvent power of the water itself. Salt, it is well known, forms the spice of all waters. It is a pungent, wholesome ingredient of pleasant taste, which, however, is claimed not to affect the original taste of Apollinaris water. The Secretary says that the quantity which is added is not great. Still, it amounts for the yearly importation of the water to about five tons of a dutiable article, which, in our opinion, is an appreciable quantity.

Having described the processes which the water undergoes after it leaves the spring, and which require much care and skill, and the chemical alterations of the water

by the addition of mineral substances, fluid and gaseous, which never formed a component part of the water when in the spring, and the importation of the same under such gas pressure as to present a physical impossibility for the natural water to be under at a depth from which it is claimed to be taken, we invite the impartial opinion of the intelligent reader whether such a water is not the handiwork of man, and whether the Secretary has not been misled in the decision of a question of a chemical nature with which he does not seem to be familiar, and whether the opinion of the Attorney-General is not correct, which holds that a court and jury "is the only tribunal which, in my judgment, is entirely competent to decide it."

The Secretary applies a decision in which the identity of the subject *was not lost*, to manufacturing processes in which *it was lost* by three distinct operations. *But identity, once lost, is lost forever. It cannot be restored by skill and art, without imparting to the subject artificial character.*

It is difficult to understand the motives which induced the Secretary to assume such extraordinary responsibility. When accepting the portfolio of the Treasury, he did not thereby become an expert or professor of chemistry, metallurgy or any other science. It would be absurd to suppose that Hon. Chas. J. Folger as a private citizen would undertake to analyze a mineral spring, and write an opinion on the original proportions of its ingredients; it certainly would be of no more value than that of any other private citizen who has no knowledge of chemistry. But he uses his official power to set aside the analyses and opinions of the chemists of the U. S. Assay office, of the Smithsonian Institution and of the U. S. Laboratory, and to overrule the highest law officer of the Government. And upon what grounds? Not upon the facts before him, but upon suppositions which are in conflict with chemical philosophy and the laws of nature, and upon a newly invented theory of

his own, that it is possible, by great skill and art, to manufacture a natural product. Would Hon. Chas. J. Folger, as a judge of the Court of Appeals, have substituted in any decision an untenable theory for the facts before him, as he has done in this case ?

The manufacturers and proprietors of domestic mineral waters, through their counsel, only asked that the decision as recommended by the Attorney-General be left to a court and jury. What great public interests were imperiled, that the Secretary refused their request and deprived them of the privilege of determining this question before a judicial tribunal ? The importers, by such a course, would not have lost their rights, if they had any. Is it the duty of the Secretary to uphold them in claims more than doubtful ?

By his decision, which has a judicial effect, a large sum of money paid for duties is to be refunded, and a prospective revenue from the importation of this and similar manufactured waters amounting to \$300,000 per annum is lost. His motive could not have been to deprive the Treasury of revenue justly due.

What impelled him to confuse and unsettle the accepted meaning as to what is natural, and to aid the importers in imposing upon the American people a salted thing, manufactured in soda water machines, as a natural water, and to proclaim it, in good advertising style, as "an article which is produced by nature, and is not the handiwork of man ?"

THEIR OWN STATEMENTS

prove the water artificial.

The Apollinaris Company, in their German and American business pamphlets, admit all charges brought against their artificial water, though the truth has been enveloped almost beyond recognition in clouds of words and obscured by false statements.

1. They admit that the natural water contains iron, but state "that the water of commerce can be considered as *entirely free of iron.*" The iron has therefore been removed from the water, which thereby has lost its identity. We charge that it is removed in order to increase the value of the water for table use. They admit this when they say that its "freedom from iron salts gives it a great superiority * * * * * in its qualities of heightening rather than deteriorating the flavor of the most delicate wines."

Our charge is fully sustained by their published statements ; but in the face of all this, the Secretary decides that the iron is not removed, and that its presence or absence would make no difference in the quality of the water.

2. Their American pamphlet contains Prof. Wanklyn's report, in which he states that " his analysis of the Apollinaris Spring confirmed his previous analyses, as also those of Bischof and others."

In their German pamphlet, in which they also mention an addition of salt, they published Prof. Wanklyn's analysis and represent it as an original analysis of the Apollinaris Spring. It is, however, only a copy of Prof. G. Bischof's analysis, with the proportion of salt increased from 4.66 to 14.66 parts, and they use it as a basis of comparison, in tabular form, with renowned springs such as Selters, Ems, Vichy, Carlsbad, etc., for the purpose of showing "the merits of the Apollinaris Spring and its similarity with other springs." We charge that salt is added to improve the flavor and imitate Selters water, which they in their briefs deny. They state in their pamphlets, "that the world-renowned Selters is very similar to it (Apollinaris water) in composition." The Apollinaris water of commerce is similar to it, because they make it so.

The Secretary decides that the salt is added to preserve the water, and that this addition does not change its character and identity.

3. The Apollinaris Company state that carbonic acid "is pressed into the water by special apparatus," and that "the water sold in bottles is particularly rich in gas, and is called *doubly carbonated*," and that "it competes, on account of its large percentage of carbonic acid, with the artificial Selters and soda water," and "that it combines the pleasantness of an artificial with the useful properties of a natural water," and "that it possesses the high proportion of carbonic acid gas belonging to the artificial Seltzer and soda water."

But *doubly carbonated*—Doppel Kohlensaure Fullung—means that an extra quantity of carbonic acid has been forced into the natural water, and that it therefore is admittedly not the same as the water as taken from the spring.

Apollinaris water was formerly imported in bottles, with the letters "Doppel Kohlens. Fullung," etc., pressed or blown into the glass, samples of which were offered in evidence, and are on file in the Treasury Department.

In the manner above indicated, additions are made to the extent of two hundred and fifty per cent. in solid and gaseous mineral ingredients; the effects of which can be better appreciated when we consider that they alone would suffice to convert an ordinary water into a valuable table water.

4. The Apollinaris Company, on page 4 of their German pamphlet, say: "In the year 1852, at a depth of about fifty feet, the sources of the Apollinaris spring were found, which there issued from the rock with great noise *in separate veins of a temperature of from 15° to 22° R. (65 $\frac{3}{4}$ °–81 $\frac{1}{2}$ ° F.)*. At that depth, therefore, the spring has its origin; the separate veins coming from varying depths, as indicated by their temperatures, there unite to form Apollinaris water of 70 $\frac{1}{4}$ ° F.; and the Secretary's decision, based upon the assumption that the spring goes down to some indefinite depth, is in conflict with the above admissions and contrary to the laws of nature."

The result is before us: The Secretary of the United States Treasury has, in this matter, disregarded the opinions of every scientific man on whom he or the authorities have called for advice; overruled the chief law officer of the Government, and rendered a decision which, on the admissions of the Apollinaris Company and the facts presented by himself, is unsustained and erroneous.

IMPORTED APOLLINARIS WATER

ARTIFICIAL.

"I am, therefore, of opinion that the Apollinaris water of commerce ought to be regarded as artificial and not as natural."

Cambridge, April 6th, 1882.

WOLCOTT GIBBS,
Rumford Professor in Harvard University.

The above opinion was rendered since the decision of the case by the Secretary of the Treasury.

"An artificial mineral water, not only artificially aerated, but also artificially compounded."
TORREY & EATON, *U. S. Assay Office, N. Y.*

"The artificial butter in the mineral water line," * * * * "without any claim whatever to call itself a natural water." Published opinion of
PROFESSOR DR. MOHR, *University of Bonn.*

"From the descriptions of the various manipulations to which the Apollinaris water is subjected, I have come to the conclusion that the Apollinaris Natural Mineral Water, as imported by Messrs. De Bary & Co., has been impregnated with minerals after being taken from the spring and must be considered an artificial mineral water."

H. ENDEMANN, Ph.D., *New York City.*

The imported Apollinaris water is reported artificial by
PROFESSOR ENDLICH, *Smithsonian Institution.*

"In conclusion, I am of the opinion that if we accept the evidence furnished by the Apollinaris Company, with the admissions made by their experts alone, we cannot but conclude that the Apollinaris Mineral Water, as imported, is an artificial water."

EDWARD SHERER, *Chemist in Charge,*
U. S. Laboratory, New York.

"I desire to state as my opinion, arrived at after thorough investigation and careful deliberation, that the Apollinaris water, as imported into the United States, has been subjected to artificial treatment, constituting processes of manufacture, without which it would undoubtedly possess a flat and insipid taste, and that it cannot justly rank as a natural mineral water."

J. P. BATTERSHALL, *Chemist,*
U. S. Laboratory, New York.

"Upon the receipt of the report of the chemist to the effect that the water analyzed was not the natural product of the Apollinaris springs, but had undergone certain manipulations and changes which rendered it, in point of fact, an artificial water, I decided to lose no time in giving the Government the option of collecting the duties upon this merchandise which were presumably due."

J. Q. HOWARD, *Appraiser, Port of New York.*

"I concur with the Appraiser that 'any addition to or subtraction from mineral spring water, as it exists in a state of nature * * causes it to cease to be a natural water.'"

J. D. BALCH, *Spe. Collector, Port of New York.*

"Were it possible to disintegrate coal and separate the gases in it from the tangible substance, and then again to reunite them in the same proportions and distribution, the result would again be coal, and the same coal." (From decision Secretary of the Treasury.)

"In reply I have to say, that the assumption is absurd. No chemist, and no person having the least familiarity with chemical principles, would ever sincerely present such a hypothetical case."

NEW HAVEN, CONN., March 23d, 1882.

B. SILLIMAN,
Medical Department, Yale College.

"At present the importations of Apollinaris water amount to not less than 80,000 cases or 4,000,000 bottles a year. If an artificial water, as, in my opinion, from all the evidence I have been able to gain, it appears to be, the duty on that quantity, including the bottles, amounts to at least \$175,000 a year."

C. C. ADAMS, *U. S. Special Agent, Treasury Department.*

"An artificial mineral water—I am of the opinion that it ought to be so regarded, and held to be liable to duty."

WAYNE MacVEAGH, *Attorney-General.*

(June, 1889, 20,000)

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